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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/022,289	12/14/2001	Jane A. Blasi	08935-244001 / M-4961	2843
26161	7590	02/27/2004	EXAMINER	
FISH & RICHARDSON PC 225 FRANKLIN ST BOSTON, MA 02110			YUAN, DAH WEI D	
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 02/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/022,289

Applicant(s)

BLASI ET AL.

Examiner

Dah-Wei D. Yuan

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12/19/03.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26,31,32 and 34-61 is/are pending in the application.
- 4a) Of the above claim(s) 1-18 and 37-61 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 19-26,31,32,34-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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**ELECTROLYTE ADDITIVE FOR NON-AQUEOUS ELECTROCHEMICAL CELLS**

Examiner: Yuan

S.N. 10/022,289

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February 12, 2004

**Detailed Action**

1. The Applicant's amendment filed on December 19, 2003 was received. Claims 27-30,33 were canceled. Claim 19 was amended. Claims 48-61 were added.

2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action issued on September 17, 2003.

***Election/Restrictions***

3. Newly submitted claims 48-61 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: The subject matter of aforementioned claims is an electrochemical cell comprising an electrolyte comprising salts consisting essentially of lithium salts and lithium perchlorate, which is a distinct species from the "an electrochemical cell comprising an electrolyte comprising a lithium perchlorate and a lithium salt selected from the group consisting of LiTFS, LiTFSI, and LiPF<sub>6</sub>" as recited in the original claims.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 48-61 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

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*Claim Rejections - 35 USC § 103*

4. Claims 19-26,34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nimon et al. (US 6,165,644) in view of Kim et al. (US 6,001,509).

With respect to claim 19, Nimon et al. teach a lithium battery comprising a positive electrode, a negative electrode and an electrolyte. The positive electrode may be attached to a current collector by directly forming into the current collector or by pressing a preformed electrode onto the current collector. The current collectors are typically sheet of conductive material such as aluminum or stainless steel. Exemplary but optional electrolyte salts for the batter cells incorporating the electrolhte solvents include lithium trifluoromethanesulfonimide (LiTFSI), lithium triflate, lithium perchlorate,  $\text{LiPF}_6$ ,  $\text{LiBF}_4$  and  $\text{LiAsF}_6$ . Nimon et al. further disclose the lithium battery can be either a primary battery or a rechargeable battery. See Column 7, Lines 46-50; Column 8, Lines 42-46; Column 13, Lines 5-10. However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made to combine lithium perchlorate and a lithium salt selected from the group consisting of LiTFS, LiTFSI, and  $\text{LiPF}_6$ . It is prima facie obvious to combine two compositions, each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition which is to be used for the very same purpose. In re Kerkhoven, 205 USPQ 1069, 1072.

With respect to claims 20,21, Nimon et al. teach the lithium battery can be a lithium (anode) – manganese oxide (cathode) primary battery. See Column 8, Lines 42-46.

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With respect to claims 22-26, Nimon et al. teach the addition of lithium perchlorate to the electrolyte in the primary battery as discussed above. Kim et al. recognize that ionic conductivity of the electrolyte of the battery is determined by the content of the lithium perchlorate in the electrolyte. See Column 4, Lines 25-32. Therefore, it would have been within the skill of the ordinary artisan to fabricate an electrochemical cell of Nimon comprising at least 2500 ppm to less than 20,000 ppm by weight of the lithium perchlorate in the electrolyte, because Kim et al. teach the desired ionic conductivity of the electrolyte can be achieved by modifying the content of lithium perchlorate in the electrolyte. *Discovery of optimum value of result effective variable in known process is ordinarily within skill of art.* In re Boesch, CCPA 1980, 617 F.2d 272, 205 USPQ215.

With respect to claims 34-36, Nimon et al. teach the optional electrolyte salts for the battery include lithium trifluoromethanesulfonimide, lithium triflate and lithium hexafluorophosphate ( $\text{LiPF}_6$ ). The typical concentration of the lithium salt is 0.5 moles/liter, which is equivalent to 76,000 ppm when  $\text{LiPF}_6$  is used.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 31,32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nimon et al. (US 6,165,644) and Kim et al. (US 6,001,509) as applied to claims 19-26,34-36 above, and further in view of Kitoh et al. (US 6,352,793 B2).

Nimon et al. disclose a primary electrochemical cell as described above in Paragraph 3. However, Nimon et al. do not disclose that the use of aluminum as the case material. Kitoh et al. teach the use of pure aluminum (melting point 660°C) as case for a lithium battery because it has light weight, excellent electron conductivity and good workability. See Column 2, Lines 15-25. Therefore, it would have been obvious to one of ordinary skill in the art to use aluminum case for the lithium battery of Nimon et al., because Kitoh et al. teach the use of aluminum battery case because of its light weight and excellent workability.

#### ***Double Patenting***

7. The nonstatutory double patenting rejections are withdrawn, because the independent claim 19 has been amended.

#### ***Response to Arguments***

8. Applicant's arguments filed on December 19, 2003 have been fully considered but they are not persuasive.

*Applicant's principle arguments are*

*Nimon does not describe or suggest an electrochemical cell comprising an electrolyte that contains both lithium perchlorate and LTFS, LiTFSI, or LiPF<sub>6</sub>.*

In response to Applicant's arguments, please consider the following comments.

Nimon et al. teach use of electrolyte salts (emphasis added) for the battery cells.

Examples of the salts include LiTFSI, lithium triflate, lithium perchlorate, LiPF<sub>6</sub>, LiBF<sub>4</sub> and LiAsF<sub>6</sub>. See Column 10, Lines 14-18. Therefore, it would be prima facie obvious to combine lithium perchlorate with a lithium salt selected from the group consisting of LiTFSI, LiPF<sub>6</sub>, and LiBF<sub>4</sub>, each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition which is to be used for the very same purpose. In re Kerkhoven, 205 USPQ 1069, 1072.

### ***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dah-Wei D. Yuan whose telephone number is (571) 272-1295. The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dah-Wei D. Yuan  
February 16, 2004

